2001

Participation and performance on Virginia's Standards of Learning by students with disabilities: The influence of classification and placement

Paula Maria Spady
William & Mary - School of Education

INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

Bell & Howell Information and Learning
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
800-521-0600

PARTICIPATION AND PERFORMANCE ON VIRGINIA'S STANDARDS OF LEARNING BY STUDENTS WITH DISABILITIES: THE INFLUENCE OF CLASSIFICATION AND PLACEMENT

A Dissertation

Presented to

The Faculty of the School of Education

The College of William and Mary

In Partial Fulfillment

Of the Requirements for the Degree

Doctor of Philosophy

---

by

Paula Maria Spady

May 2001

UMI Number: 3003497

UMI Microform 3003497

Bell & Howell Information and Learning Company
300 North Zeeb Road
P.O. Box 1346
Ann Arbor, MI 48106-1346

one door closes,
another door opens

DEDICATION

In honor of my parents, Eileen and Donald Spady,
who instilled in me the desire to learn and taught me perseverance

TABLE OF CONTENTS

ACKNOWLEDGEMENTS

This study would not have been possible without the assistance and support of many individuals. I would like to express my appreciation to the members of my dissertation committee for their assistance with this project: Dr. Sharon deFur for her insight on the topic and her attention to numbers, and Dr. Bruce Bracken for his patience and sense of humor. I am deeply grateful to Dr. Chriss Walther-Thomas, my committee chair, for endless hours of meticulous editing, her constant encouragement and her willingness to go the extra miles.

I am extremely fortunate to have had the opportunity to attended The College of William and Mary and be part of the special education cohort. I give special appreciation to Dr. Brenda Williams who helped make this opportunity possible. Thanks to my fellow "graduate ghetto" inhabitants who made the journey more enjoyable and to Dr. Mary Mehaffey for her wisdom and guidance through the years.

A special thanks is extended to my family and friends for their constant support and encouragement, in particular, my cousin, Sherry, for her endless wit and humor. An enormous thanks to Jean who "took up the slack" at home, tolerated my endless piles, and provided me with Pringles. Finally, thanks to my four-legged family who kept me company in the wee hours of the morning.

PARTICIPATION AND PERFORMANCE ON VIRGINIA'S STANDARDS OF LEARNING BY STUDENTS WITH DISABILITIES: THE INFLUENCE OF CLASSIFICATION AND PLACEMENT

ABSTRACT

As policymakers, legislators, and educators develop programs that will affect students with disabilities; it is crucial that accurate information is available to inform decision-making efforts. For this reason, research designed to examine the participation and performance by students with disabilities on high-stakes tests is needed.

This study was designed to determine whether there was a significant difference in the participation and performance of students with disabilities on the Virginia Standards of Learning assessment when examined by grade level, subject, and disability classification in an urban district. Data were analyzed using two methods; cross-tabulation chi-square tests and MANOVAs with follow up post hoc analyses conducted, as needed using the Games-Howell and the Tukey-B procedures. The results suggest significant differences between the proportion of students who participated on the assessments when examined by grade, placement, and classification. Analyses related to performance yielded significant differences in performance on the state assessment when examined by placement and classification.

PAULA MARIA SPADY

SCHOOL OF EDUCATION

THE COLLEGE OF WILLIAM AND MARY IN VIRGINIA

CHAPTER 1

The current standards-based reform movement began more than two decades ago in response to a perceived crisis in America's schools (Meier, 2000). Reactions to this movement have varied, often resulting in a polarization of educators, policymakers, and families. Supporters of the effort contend that standards-based education holds the promise for improving public education by rectifying inequalities in the present system and providing the means for all children to meet higher academic expectations (Chase, 2000; Murnane, 2000; Thernstrom, 2000). Opponents, on the other hand, claim that it is fraudulent to think standards-based reform alone will fix the complex social, political, and family issues that affect our schools (Ayers, 2000; Meier, 2000).

While debate over the need for standards-based reform continues, 49 states have instituted academic standards in the past decade (Hardy, 2000; Hoff, 2001). Many states have also adopted "high-stakes" assessments, that is, tests used to make determinations regarding grade promotion and high school graduation (Kaiser, 2000; McDonnell, McLaughlin, & Morison, 1997). In many cases, teachers, principals, schools, and districts are held accountable for student performance on these measures. As a result, poor student scores can affect tenure, salaries, job security, school accreditation, and public confidence. Needless to say, increasing emphasis on high scores on standards-based assessments is creating tremendous pressure on students, families, educators, school administrators, and policymakers (Kaiser, 2000).

Legislators have recognized the need to include students with disabilities in these reform efforts. It is generally agreed that assessment is the foundation of educational

accountability. Therefore, to ensure that students with disabilities receive appropriate educational services, they must be included in such accounting (Elliott, Thurlow, & Ysseldyke, 1996; Vanderwood, McGrew, & Ysseldyke, 1998). Further, if students with disabilities are left out of the assessment process, policymakers and educators are more likely to leave them out of resource and funding efforts as well (Thompson, Thurlow, Spicuzza, & Parson, 1999). Consequently, the Reauthorization of the Individuals with Disabilities Education Act [IDEA](IDEA, 1997) emphasizes the importance of access to the general education curriculum and participation in the assessment process to ensure accountability for the educational future of these students. IDEA outlines plans for inclusion of students on statewide testing and procedures for reporting performance.

Inclusion of students with disabilities in high-stakes testing is fueling the already heated educational, philosophical, and legal debates that exist (Hirsch, 2000; Hurwitz & Hurwitz, 2000; Ohanian, 2000). There are many differing viewpoints regarding the appropriateness of participation by students with disabilities in state and districtwide assessment efforts. To some observers, it seems as if Individual Education Programs (IEP) and standards-based reform efforts are on opposites ends of an educational continuum. That is, at one end is a plan intended to emphasize individual strengths and weaknesses, while at the other is a set of uniform academic standards that all students must achieve (McDonnell et al., 1997).

As students with disabilities participate more fully in the general education curriculum and in the assessment process, many compelling questions must be addressed. First and foremost, will this push for higher standards and greater accountability increase or decrease general curriculum access by students with disabilities? Will access to the

curriculum ensure access to the assessment process? Does instructional placement (i.e., self-contained special education classroom, resource or part-time instruction in special education) affect students' access to the curriculum and does it affect participation in the assessment process? How does the overall participation and performance of students with disabilities compare to the overall participation and performance of typical students? Does disability classification affect students' participation and performance on high-stakes assessments?

The Problem

Currently, limited data are available on the participation and performance of students with disabilities on high-stakes tests (McGrew, Thurlow, Shriner, & Spiegel, 1992; Thompson et al., 1999). As policymakers, legislators and educators develop programs that will affect these students, it is crucial that accurate information is available to inform decision-making efforts. For this reason, research designed to examine the participation and performance by students with disabilities on high-stakes tests is needed.

Purpose of Study

This study adds to the body of knowledge concerning students with disabilities and high-stakes assessment through an investigation of the participation and performance of these students on the Virginia Standards of Learning (SOL) assessments. Specifically, this study explored participation rates and performance for students with disabilities in grades three and five in the subtests of mathematics, science, and English for 1998, 1999, and 2000. This research was conducted in a mid-size urban Virginia school district.

Ethical Safeguards

The study was approved by The College of William and Mary, School of Education Committee on Research on Human Subjects. The study design was also reviewed and approved by the director of research in the participating school district. To ensure the confidentiality of the students and the school district, the name of the participating school district has been changed. The purpose of this investigation was not to discredit any person, program, school, or the district itself. Every effort was made to ensure that the information be used for its intended purpose.

Overview of Study

A review of literature that provides relevant background information concerning the inclusion of students with disabilities in high-stakes assessments will be addressed in Chapter II. The methodology will be explained in Chapter III, and results in Chapter IV. Finally, Chapter V consists of a discussion of the findings, implications for special education, and recommendations for further research.

CHAPTER II

Review of Literature

This chapter provides relevant background information on the legislation and litigation that have affected inclusion of students with disabilities (SWD) in general education. In addition, the literature on the standards-based assessment movement and its influence on special education at national and state levels will be reviewed. Finally, Virginia's standards-based assessment effort is examined.

Historical and Legal Framework

Education of students with disabilities has been a concern throughout the history of public education in the United States. Starting in the early 1800s, numerous residential schools were opened as a result of the work by early reformers, who fought to ensure that children with disabilities were educated not just "warehoused" (Haring, McCormick, & Haring, 1994; Kirk, Gallagher, & Anastasiow, 1993). By 1900, classes for students with physical impairments and children with visual impairments had been established in Chicago (Bailey & Wolery, 1984; Kirk et al., 1993). Massive advancements were made in the next 50 years in the refinement and invention of adaptive equipment, which helped to improve the lives of students with disabilities (Haring et al., 1994); however, students with disabilities were still educated primarily in segregated facilities (Rothstein, 1995). In addition, only a few programs were designed to prepare teachers to work with students with such varying needs (Goor, 1995).

Educational opportunities began to improve more rapidly after the *Brown* v. *Board of Education* (1954) case. This civil rights case made it clear that separate

education was not equal because of the stigma attached to being educated separately. Thus, the Brown case affirmed that all citizens, including students with disabilities, have equal protection with regard to education (Rothstein, 1995). As a result, slowly, states began to establish programs for some students with disabilities within regular schools (Meyen & Skrtic, 1995). Due to the efforts of earlier advocates, many states were already subsidizing programs for students with visual and hearing impairments.

In addition, advocacy efforts by parents and professionals gradually spurred the federal government to take a more active role in creating educational opportunities for children with disabilities (Goor, 1995; Haring et al., 1994; Rothstein, 1995). In the 1960s, federal funds were provided as incentives for educating children and youth with disabilities in local schools and state-supported programs, for preparing special education teachers, and for developing regional resource centers (Bailey & Wolery, 1984). In addition, federal grants became available to help communities develop and implement early intervention programs for disadvantaged children from birth to age six and legislation offered supplemental social security income to people with disabilities (Haring et al., 1994; Kirk et al., 1993). Despite efforts to include students with disabilities, however, identification and placement remained inconsistent, sporadic, and basically inappropriate (Rothstein, 1995). As a result, citizens continued to question the fairness of these inequalities (Goor, 1995).

By 1972, using principles laid out in *Brown* v. *Board of Education* (1954), more than 30 legal cases had been filed throughout the country in defense of children with disabilities (Rothstein, 1995). Rulings in two landmark decisions *Pennsylvania Association for Retarded Children (PARC)* v. *Pennsylvania* (1971) and *Mills* v. *Board of*

Education (Washington, DC, 1972) accelerated the momentum toward far-reaching federal legislation. These rulings established the constitutional basis for educating students with disabilities and mandated due process procedures so that no students with disabilities can be denied an education without the opportunity to protest the consequences of such a decision (Turnbull, 1993). About the same time, Congress passed the Rehabilitation Act of 1973, Section 504 of which required that all programs receiving federal monies be nondiscriminatory to students with disabilities on the basis of their disability. While students served under Section 504 are not in special education, school districts are mandated to determine appropriate educational programs for all students who qualify under Section 504 (Virginia Department of Education [VDOE], 1997).

In 1975 Congress passed P.L. 94-142, the Education for all Handicapped Children Act (EAHCA), which became the foundation for special education as we know it today. EAHCA increased the federal financial commitment to the education of students with disabilities and created oversight provisions to ensure greater uniformity in special education services across the country (Rothstein, 1995). Specifically, provisions were designed to ensure that students with disabilities would receive free appropriate public education (FAPE) in the least restrictive environment (LRE), with all necessary supplementary aids and services needed for academic success. In addition, the law required that Individualized Educational Programs (IEP) be developed annually for each special education student (Bailey & Wolery, 1984). Parents' rights were also established, and due process procedures were mandated through the identification, assessment, and placement process to ensure protection of families' rights. Since its passage, this law has

served as the catalyst for inclusion and established major policies that states are required to follow in order to receive the federal funds.

In the years between 1975 and 1990, Congress passed additional laws to ensure improved education for students with disabilities. In 1990, the EAHCA (P.L. 101-476) was reauthorized and renamed the Individuals with Disabilities Education Act (IDEA). IDEA added transition services, assistive technology, and rehabilitation counseling to the existing law, as well as broadened the scope of eligible disabilities. In 1992, the reauthorization of the Rehabilitation Act of 1973 replaced the word "handicapped" with "disability" throughout in an effort to preserve the dignity of individuals with disabilities. The 1997 Reauthorization of IDEA brought additional provisions for students with disabilities. For example, Section 612 of IDEA requires states and local districts to (a) include students with disabilities in district and statewide assessment programs, with accommodations where appropriate; (b) report the number of students with disabilities participating in state assessments; and (c) report the performance of students with disabilities on these assessments to the public with the same frequency and in the same detail as reported for children without disabilities (VDOE, 1997).

Standards-Based Reform Movement

Parallel to the inclusive education movement is the standards-based reform movement. Unlike many developed countries, the United States does not have a national curriculum or a national assessment for students in its public schools (Bracey, 1995). Instead, historically, curriculum development and student assessment have been left to the determination of individual states and local school districts. With more than 14,000 school districts in the country, this has led to a great variation in educational services and

their quality (Jennings, 1998; Ladd, 1996). In this section the history of the standards-based reform movement will be briefly reviewed.

In the early 1980s, political, educational, and business leaders initiated a call for public school reform to ensure that American students would be well prepared for the economic and technology challenges of the 21st century (McGrew et al., 1993). One result of this mandate was A Nation at Risk (National Commission on Excellence in Education [NCEE], 1983), which showed grave concerns when American schools were compared to those in other countries. The outcry over the findings of A Nation at Risk, often viewed as the catalyst for the current educational reform movement, caused local school boards, state agencies, families, and community leaders to reexamine the educational practices in their areas (Meyen & Skrtic, 1995). Following A Nation at Risk, the results of hundreds of studies increased public pressure on schools to improve (Dettmer, Dyck, & Thurston, 1996; Ladd, 1996; Meyen & Skrtic, 1995). People wanted America's schools to compete on the international level.

This first wave of reform sought to strengthen the rigor of America's schools (Michael, 1998). People wanted a return to basics and a focus on curriculum requiring greater higher-order thinking (Meyen & Skrtic, 1995). Some teacher associations, parents, and states agencies were ahead of national leaders in realizing the need for change. Many groups began working on developing state and local standards (Jennings, 1998). Over time, standards-based reform has become an approach that links learning objectives and accountability. Ideally, standards-based reform promotes common educational standards as the vehicle for improving educational outcomes based on the

belief that educators will then know what to teach and students will understand what they need to learn (McDonnell et al., 1997).

Although one might expect that raising standards and improving education would be a concept that all citizens could support, this was not the case. The standards movement soon became very controversial at the national level; many differences fell along political party lines (Jennings, 1998; McDonnell et al., 1997). Consequently, a historic education summit took place in September 1989, when then President George Bush and governors from all 50 states met in Charlottesville, Virginia, to discuss education reform (Ysseldyke, Algozzine, & Thurlow, 1992). In 1991, with ideas derived from this summit, President Bush and Secretary of Education Lamar Alexander presented a reform plan called America: 2000. The plan outlined six educational goals to be accomplished by 2000, including national standards, national testing, and an emphasis on English, mathematics, science, geography, and history (Dettmer et al., 1996; Jennings, 1998).

By the early 1990s, many states had already initiated their own curricular reforms; however, the federal initiative helped focus public attention on these ongoing efforts. Most states responded to America: 2000 by increasing academic rigor, emphasizing core curriculum and requiring more credits to graduate (Shokoohi-Yekta & Kavale, 1994). Specifically, a 1995 study by the Council of Chief State School Officers (Rhim & McLaughlin, 1997) noted that 34 states had created new science and mathematics standards and the majority of states were developing standards in English and social studies.

Today 49 states, all but Iowa, have adopted state-level curriculum standards (Hardy, 2000; Meier, 2000). In some states, these standards represent broad frameworks that

localities are encouraged to use to guide local efforts to improve their schools. In other states, standards must be followed at the local level with approved textbooks, curricula, and state-developed assessments linked directly to the standards (McDonnell et al., 1997). While states such as Colorado, Kentucky, and Virginia measure statewide content standards through statewide assessment, other states leave assessment decisions to local districts (USDOE, 1997). In numerous "high-stakes" states, test results are attached to grade promotion, graduation, teacher pay increases, and school accreditation (Corbett & Wilson, 1991; Kaiser, 2000). Currently, 25 states have graduation tests in effect or planned and seven of them states have tests for grade promotion (Pilotin, 2001).

Although some hail the standards movement as a welcomed incentive that has focused national attention on our schools (Dettmer et al., 1996; Hurwitz & Hurwitz, 2000; Murnane, 2000), others view it as merely a cosmetic fix to a broken system (Ayers, 2000; Bracey, 1995; Kohn, 1999). In 2000, the Fordham Foundation, a private foundation that supports research and projects in education reform, examined state academic standards in English language arts/reading, history, geography, mathematics, and science. The Fordham report, The State of State Standards, found that having state standards in place is not enough. Rating each state, the researchers concluded that only five states were addressing standards-based reform well. According to the same report, three additional states have solid standards but weak accountability systems and 10 states have weak standards and accountability. The researchers concluded that 21 states have very limited reforms in place (Finn & Petrilli, 2000).

Advantages and Disadvantages of Standards-Based Reform

While some contend that standards-based reform will be the death of American education, others see it as its salvation (Hardy, 2000; Hurwitz & Hurwitz, 2000). In the following section the two sides of this controversial topic will be explored. Advantages of standards-base reform will be presented first, followed by a discussion of the disadvantages.

Advantages. Standards-based reform provides both students and teachers accountability. Goals 2000: Educate America Act (P. L. 103-227) includes students with disabilities in its mandate for states to set high standards, and language within IDEA (1997) verifies that students with disabilities must be included in state and district wide assessments [Section 612(a)(17)(A)]. Consequently, students with disabilities or their assessment scores can no longer be excluded from state and district reports (Kearns, Kleinert, & Kennedy, 1999). This is important because there is a lack of accountability for the education of these students is lacking when they are excluded from testing (Ysseldyke, Thurlow, Kozleski, & Reschly, 1998). It is hoped that the inclusion of students with disabilities in standards-based assessment will not only provide more data about them on large-scale assessments but will also make schools more accountable for the academic needs of all students (Koretz, 1997).

One of the most glaring inequities in American education is the wide performance gap between students who live in poverty and their more affluent peers (Chase, 2000). This discrepancy is important, because students from poor schools and districts will be held to the same standards as students from more affluent areas (Thernstrom, 2000). As performance scores are made public, many contend that extreme

differences between rich and poor communities will become more apparent. While experts think use of standard-based assessments may even accentuate that gap (National Education Association [NEA], 1997) supporters contend that the wide disparities between rich and poor communities may help improve educational equity for all students (Chase, 2000). That is, using these data to guide decision-making, schools, districts, and states can make changes concerning allocation of human and economical resources (Jones, 2000; Murnane, 2000). For example, scores on the Texas Assessment of Academic Skills (TAAS) are disaggregated in a variety of ways, allowing districts to closely monitor specific groups (Hardy, 2000). Individual schools are rated on the percentage of students in each group who passes the exam (Hardy, 2000). As a result, additional resources have been focused in areas of low achievement and have improved Texas' African American and Hispanic students' scores. San Francisco disaggregates assessment information in a similar manner and has been able to cut the dropout rate from 18.3 % to 9.4 % (Quality Counts: Make Performance Count, 1998).

Use of standards-based assessments can help bring clarity, focus, and continuity to local education efforts (Jones, 2000). Proponents of standards-based assessments contend that if the curriculum is aligned with the assessment and students are taught what they need to know, academic results will improve. By identifying need and then working collaboratively, schools can address needs more effectively. For example, El Paso, Texas, the fifth-poorest major metropolitan area in the country, demonstrated significant improvement as a result of this process. According to Quality Counts: Raise the Bar (1998), one fourth of El Paso's residents are foreign born, 30% of its adults are functionally illiterate, and more than 25% live in poverty. In 1990, as Texas began to put

high-stakes assessment in place, El Paso community leaders joined with local university, community college, regional businesses, and religious leaders to form the El Paso Collaborative for Academic Excellence (Duttweiler & McEvoy, 1996). The goal of this group was to raise the academic level of the city's youth and improve the skills of the teachers. As a result, El Paso adopted rigorous academic standards, provided professional development for teachers, and invested in new curricula and teaching methods. In just a few years, El Paso turned the local education around. To qualify as exemplary, 90% of students pass the TAAS. More than 30 El Paso schools were rated as exemplary by the state agency, and none of the city's schools was identified as low performing (Quality Counts: Raise the Bar, 1998).

In our highly mobile society, many students move between schools and districts. This is particularly true for children and youth who are homeless. Frequent moves can be detrimental to low-achieving students and students with disabilities because the amount of learning they lose between moves can be enormous (Stronge, 2000). This is true especially if the move is to a district that is teaching different content and skills at a given grade level. Statewide standards ensure academic content consistency, which helps equalize school districts and helps minimize the academic disruptions in mobile students' lives (Hess & Brigham, 2000). Parents, students, and teachers across the state are all "working from the same page," that is, they know there is a set of common core skills that must be mastered at each grade level.

Over time America's trust in its public schools has eroded. A survey found that 63% of employers and 76% of professors believe that a high school diploma is no longer a guarantee that a student has learned the basics (Center for Education Reform, 2000).

Standards-based reform has the opportunity to change those beliefs. A system of clear, cohesive standards matched with curriculum-based assessments will result in higher achievement overall (Hirsch, 2000). Used correctly, test results may aid in classroom instruction (Schmoker, 2000) by pointing to deficits early, thereby enabling appropriate intervention (Christie, 1998; Harrington-Lueker, 2000). But improved achievement will take time and resources. Assessment results form a blue print of individual, school, and district assets and deficits, which can be used to pinpoint problem areas and more narrowly focus their professional development (Hess & Brigham, 2000) and allocate funds accordingly.

In summary, there are five primary advantages to standards-based reform. First, and foremost, standards-based assessment provides accountability for the instruction of all students. In addition standards provide uniform criteria, clarity, focus, and continuity.

Disadvantages. If standards are set high enough to be true standards, and not just a futile exercise in test taking, obviously not all students will pass. Failing students will be disproportionately poor, minority and students with disabilities (Hess & Brigham, 2000; Hurwitz & Hurwitz, 2000; Nakashima, 1998; Zlatos, 1994). Standards-based reform is based on the belief that there is a core body of knowledge students must master. Many countries that administer high-stakes tests use them to determine whether students will be on vocational or lower-level educational tracks, as entrance to higher academic high schools, or for university entrance (Hess & Brigham, 2000; Levinson, 2000). In the United States, tests results are used for a variety of reasons, from determining graduation to imposing sanctions on teachers, schools, or even school districts.

Every year more than 100 million standardized tests are administered in the United States, making American students the most tested students in the world (Neill, 1998). In Texas, for example, students are tested every six weeks in grades three through five to determine if specific district objectives are being meet (Harrington-Lueker, 2000). In Canton, Ohio a first grade proficiency test was developed to identify problems early, and in Corvallis, Oregon fifth-grade students were tested in 18 sessions on the state's standards and benchmarks last year (Harrington-Lueker, 2000). At least two states assess students in every grade from kindergarten through twelfth grade (USDOE, 1998). Harrington-Lueker, (2000) suggest that premature testing of children still in the developmental stages may be detrimental, especially to poor, minority, and students with disabilities. Not only are students being tested often, the testing is beginning early.

Another disadvantage relates to what is being tested. Typically, large-scale, standards-based assessments, emphasize content knowledge rather than higher-order thinking, developmental skills, or performance knowledge (Hess & Brigham, 2000; Jones et al., 1999). In a majority of states, students show their knowledge of subject matter on multiple-choice tests. Some experts contend that schools are under such tremendous pressure to perform that faculty and administrators are more concerned with passing scores than students' mastery of the content or the reliability and validity of the tests (Kaiser, 2000; Quality Counts: Make Performance Count, 1998). For example, stakeholders believe that they can use scores to compare educational effectiveness across students, schools, and school districts (Popham, 1999). However, this is difficult because schools and school districts are not matched samples.

Most curriculum standards are not designed as an instructional sequence, but provide a framework for information to be learned over time (Lemahieu & Foss, 1994). Many critics claim that the breadth of certain standards is too wide (Hess & Brigham, 2000; Schmoker & Marzano, 1999) and that students are required to learn too much information resulting in learning becoming memorization of facts (Kaiser, 2000; Kohn, 1999; Main, 2000). Other critics allege that standards have narrowed the curriculum, types of subjects taught, and teaching styles (Hardy, 2000) by focusing primarily on easily tested materials and often excluding performance-focused subjects such as vocational education, visual and performing arts, technology, and physical education (Hess & Brigham, 2000).

Without adequate leadership, standards are likely to cause low teacher morale, waste resources, detract from meaningful school reforms and disproportionately harm students who are poor, minority, or have a disability (Hess & Brigham, 2000). The following findings support this conclusion. A research team studied North Carolina's high-stakes assessment system, the New ABC of Public Education (ABCs) (Jones et al., 1999). The study surveyed teachers in 16 elementary schools in five districts. Schools were selected based on a three-level, stratified random sampling process, according to geographic location, past performance, and location in rural, urban, or suburban. All certified teachers in the selected schools were given the opportunity to volunteer to complete the survey for a total of 236 surveys completed. Compelling results showed that teachers spent the majority of their time preparing students for the tested content areas. Sixty-seven percent indicated they had changed their teaching methods as a result of standards; however, the types of changes were not evident. In addition, 77% of the

teachers believed that morale was lower as a result of standards and 77.2% noted that teachers should not be rewarded for student achievement on the ABC assessments.

Given the negative ramifications that standards and assessments present for poor, minority, and students with disabilities, it is not surprising that concerns exist pertaining to the participation and performance of students with disabilities. The next section will examine research on participation and performance of students with disabilities in high-stakes assessment.

Students with Disabilities and Standards-Based Assessment

The body of research on students with disabilities participating in high-stakes assessments is relatively small, and much of it is largely anecdotal (McDonnell et al., 1997). Research has shown, however, that students with disabilities are excluded to an unreasonable extent from high-stakes testing (McGrew et al., 1992; McGrew, Thurlow, & Spiegel, 1993; USDOE, 1995). For example, students with disabilities may be excluded from assessments because they have not been instructed in the curriculum being assessed (Koretz, 1997) or IEP committees may exempt students with disabilities from testing because committee members feel the tests are too stressful for the students, the students have limited cognitive abilities, and in response to parental requests (Zlatos, 1994). Often IEP teams exclude students with IEPs without necessarily realizing the ramifications (Elliott et al., 1996). Anecdotal evidence also suggests that students with disabilities are often kept from assessments for fear that they will lower overall school scores (Almond, Tindal, & Stieber, 1997; Erickson, Thurlow, & Ysseldyke, 1996; Kantrowitz & Springen, 1997; McDonnell et al., 1997). Further, low-achieving students are sometimes inappropriately identified with disabilities so they can be excluded from

the statewide assessment (Shapiro et al., 1993; Ysseldyke et al., 1998). Provisions have been developed to eliminate these practices.

In yet other instances, scores of students with disabilities who do participate are often excluded from states reports even in states that have the capability of disaggregating results (Thurlow, Scott, & Ysseldyke, 1995). In addition, states report considerable difficulty in arriving at the number of students with disabilities participating in statewide assessments (Erickson et al., 1996). The difficulty in determining eligibility for participation and reporting is due in part to the vagueness of state guidelines (Thurlow et al., 1995). Furthermore, it is difficult to compare the 43 states that have written guidelines pertaining to the participation of students with disabilities on statewide assessments because of their variability (McDonnell et al., 1997). A study by Thurlow, Elliott, Scott, and Shin (1997) examined the elements in written state guidelines that would maximize the participation of students with disabilities in high-stakes assessments by analyzing the "inclusiveness" of states' written guidelines in terms of participation, accommodations, and reporting with regard to students with disabilities. Analysis revealed that only about a 25% of the states showed at least 50% of the desired participation elements. Further, the study delineated the vast variability in states' guidelines on participation, accommodations, and reporting of assessment information concerning students with disabilities (Thurlow et al., 1997).

Relatively few studies have examined the performance of students with disabilities on high-stakes assessments. Existing research tends to compare the scores of students with disabilities to those of their typical peers, showing, as might be expected, students with disabilities being outperformed (Algozzine, Crews, & Stoddard, 1987;

Vitello, Camilli, & Molenaar, 1987). Within the students with disabilities population, students with different disabilities also perform differently on the various sections of standards-based assessments. For example, in a review of the results from the Florida Minimal Competency Examination, Safer (1980) found that 49% of students with learning disabilities passed the communication subtest and 17% passed the math subtest, whereas students with speech and language impairments had a 71% passing rate on the communications subtest and 33% on the math subtest. Students with mild mental disabilities (MMD) had the greatest difficulty, with only 6% passing the communication subtest and 1% passing the math subtest. Another early study (McKinney, 1983) showed the same pattern of results on the North Carolina Minimum Competency Test among 3,043 students with disabilities. McKinney found that students with MMD had the lowest rate, at 12% on the reading subtest and 7% on the math subtest. Students with LD had a pass rate of 56% on the reading subtest and 47% on the math subtest. What these tests do not report is the number of students with disabilities who were excluded from the test altogether. Let, these two early studies are important because they can act as a benchmark for later studies of test performance and participation.

More recently, Thompson et al., (1999) examined the performance of students with disabilities on the Minnesota Basic Standards Test [MBST] from 1996 through 1998. This test is administered to eighth-grade students. A passing score on the reading and math subtests is a requirement for graduation from high school. Participation in the reading subtest by students with disabilities increased from 69% in 1996 to 89% in 1998. Math subtest scores increased from 71% in 1996 to 89% in 1998 for students with disabilities. According to the findings, in 1996 students with disabilities had a pass rate of

24% on the reading test and 38% on the math tests, while typical peers averaged roughly 50% higher pass scores on each tests. In 1997, the cut score was raised from 70 to 75 and the pass rate for both groups dropped. In 1998, the passing rate for eighth-grade students with disabilities increased from 22% to 27% in reading but continued to decline in math from 31% to 29%. On a more positive note, participation of students with disabilities increased over the three-year period on the reading test and pass rates continued to improve. Therefore, this study does not support the notion that scores will necessarily decline when participation of students with disabilities increases (Thompson et al., 1999).

The study by Thurlow and colleagues (1997) found that most states rely on IEP committees' decisions to determine students with disabilities participation and accommodations on high-stakes assessments. Because of the lack of clear state guidelines, students with disabilities are often inappropriately excluded from assessments. The researchers suggest the need for massive training to better inform decision makers of the importance of participation by students with disabilities in the accountability system (Thurlow et al., 1997).

As more states utilize high-stakes tests for grade promotion and graduation, additional research is needed to determine the impact of these tests on public education. Particular attention must be paid to the impact of these tests on minority students, low-achieving students, and students with disabilities.

Virginia's Standards-Based Assessment

The Commonwealth of Virginia began its curriculum reform efforts in the late 1980s. In June 1995 the Board of Education adopted the Virginia Standards of Learning (SOL), which outline the criteria for what must be mastered in each academic subject in

kindergarten through 12th grade (Thayer, 2000). The Board also adopted corresponding assessments for English, mathematics, science, and history/social science in grades three, five, and eight. In addition, there are computer technology tests in grades five and eight, as well as 11 high school end-of-course tests (e.g., chemistry, algebra) for a total of 27 tests (VDOE, August 13, 1999). The Virginia SOL assessment is a criterion-referenced test developed by educators, the Virginia Department of Education [VDOE], and Harcourt Brace Educational Measurements (VDOE, February 3, 1999). Three university-based testing experts from the University of Virginia, Michigan State University, and Virginia Commonwealth University concluded that the SOL assessments are sufficiently valid and reliable for their intended use (VDOE, February 3, 1999).

As do other states, Virginia hopes that by raising expectations, student performance will improve. Virginia's students did not perform well on the initial assessment in 1998 when 98% of schools failed to meet the "70/70" requirement, that is, 70% of a school's students must earn a 70% or higher on the SOL test (Carey & Reynolds, 1999). Only 39 schools (2.2%) met the requirement and passed the SOLs. One year later that number had increased to 116 schools statewide (6.5%) that had pass-rate standards in all four SOL content areas. An additional 191 schools (10.7%) passed in three of the four SOL content areas. Further, of Virginia's 1,791 accreditation-eligible schools, 587 passed two or more of the SOL tests (VDOE, 1999). However, test results from the 1999 administration showed improvement on each of the 27 SOL tests compared to 1998. For example, 93% of schools improved student performance on fifth-grade writing. On algebra I, 85% of schools improved performance, and on algebra II, 90% of schools improved performance over 1998 scores. Sixty percent of the schools

showed improvement in United States history, a subject that had the lowest pass rate of any in 1999 (VDOE, 1999). According to VDOE (2000), results from the spring 2000 testing show that 405 (22.2%) of the 1,824 eligible schools met all the requirements for full accreditation. Furthermore, an additional 311 (17%) met the requirements for accreditation on all but one assessment. Schools receive the lowest rating, "Accredited with Warning," if their pass rates are 20 or more percentage points below the provisional benchmarks. Based on the 2000 testing, 234 schools (12.8%) earned this rating.

SOL tests are considered high-stakes tests because, beginning with the class of 2004, students must pass six end-of-course tests and earn the designated number of credits in specified areas to earn standard diplomas (8 VAC 20-131-110, B). Further, beginning in 2007, for schools to maintain full accreditation, 70% of their students must pass each core subject in the tested grades. At the present time, some exceptions to the 70% rule exist. That is, third-grade history/social science tests must have at least a 50% pass rate (Thayer, 2000; VDOE, February, 1999).

With regard to students with disabilities, accommodations for the SOL tests are those the student uses regularly during instruction and assessment as stated in their IEP. The use of accommodations does not invalidate a student's score, therefore, a score of 400 is passing with or without the use of accommodations (VDOE, 1997). Currently, students with disabilities have four options for SOL assessment: (a) participation with no accommodations; (b) participation with accommodations, that maintain standard conditions; (c) participation with accommodations that are permissible but do not maintain standard conditions; or (d) participation in an alternate assessment. Decisions about accommodations must be made independently for each content area. Typically

accommodations are classified into four categories: response, setting, presentation, and timing/scheduling (VDOE, 1997; USDOE, 1997).

For response accommodations, one student may need a proctor to mark the answer sheet in math because of difficulty transferring answers worked out on paper to the answer sheet. Another student may need a keyboard for the writing test. Students may need setting accommodations such as preferential seating to limit distractions or in order to hear instructions more clearly. Others may need the text to be presented in larger print or in Braille or to have tests read to them. Even though the SOL is a non-timed test there are still occasions when the timing/scheduling accommodation needs to be made. For instance, the test may need to be broken up into shorter periods or it may need to be scheduled when the student's medications are in effect.

It is expected that all students in Virginia will participate in the state assessment system (DeMary, 2000). If the nature of a disability interferes with a student's participation in the general curriculum, even with accommodations, an alternate assessment can be used. Recently, the VDOE issued a directive noting that effective for the 2002 school year, IEPs must describe the extent to which students will participate in the SOL assessments. No students with disabilities will be exempted from all SOL tests at a given grade level but may be exempted from a particular subtest. If this occurs, it must be noted on the IEP why a given assessment is not appropriate for the student and how the student will be assessed in that academic area. The small minority of students with disabilities not assessed on any parts of the SOL test will be assessed using the Commonwealth's Alternate Assessment (VDOE, October 25, 2000).

During the first SOL assessment, the performance results of students with disabilities were not reported separately from their typical peers on the school reports cards that went to the home of each student. However, the VDOE did generate a document that broke down each test by the 16 disability classifications and provided data on students with disabilities tested, as well as pass and failure rates. The 1998 exemption rate for students with disabilities tested averaged 22.39% for students with disabilities tested in grades three, five, and eight. The exemption average for the high school end-of course testing was lower, at 4.8%, due in large measure to the small percentage of students with disabilities tested enrolled in those classes. It is expected that students with disabilities who are enrolled in those classes will also take the SOL tests for those courses.

It is not surprising that SOL pass rates varied greatly by disability, with up to 89% of the students tested in some areas passing the tests. For the most part, these students were in low-incidence disability groups, such as physical disabilities, where approximately 24 students were tested on each of the tests at the elementary level. At the middle school level, only nine students with physical disabilities were tested statewide and as a group they passed with a rate of 89% on each of the eighth grade tests. Students with speech and language impairments passed with a 51% across tests. By comparison, students with LD, the highest disability category, passed at a low rate of 14% on fifth-grade mathematics, 11% on eighth grade history, and 10% on U.S. history. The highest pass rates for students with LD were in third-grade science, where 40% of the students passed, fifth-grade computer technology where 46% passed, and high school biology where 42% passed. An average of 8,000 students with disabilities took each of the tests

in grades three, five, and eight. Data from the 1998 test administration are important because they serve as the state baseline for future tests.

Virginia's standard-based assessment is only in its fourth year. There continues to be dialogue throughout the state and among legislators and educators to clarify areas of confusion and points of concern regarding the SOL assessments. The Department of Education has already made some adjustments to the original assessment due to concerns. It is predicted that school districts and students as a whole will continue to show improvement on the SOL assessments. Not until after the 2004 administration of the tests will the full impact of the assessments be felt, however.

Summary

Controversy remains regarding the advantages and disadvantages of the standards-based reform movement. For many states, including Virginia, the standards-based assessments and their ramifications are still in a state of fluctuation. State standards have an enormous influence on students, particularly those with disabilities (Safer, 1980). Unfortunately, the limited data are on the available performance of students with disabilities on standards-based assessments. This lack of data is due in part to the large number of exemptions for students with disabilities and to the fact that data for students with disabilities who are tested are not always disaggregated. Accurate assessment data are essential for educators and policymakers to be able to formulate better decisions. It is valuable to examine the data at the district level in order to obtain an accurate appraisal of the participation rate of students with disabilities on statewide assessments and to gather meaningful performance data. The results can be used to strengthen the educational program and hold teachers, schools, districts, and states more accountable for the

education of all students. This study adds valuable data in the area of standards-based assessment and students with disabilities.

CHAPTER III

Methodology

The purpose of this investigation was to examine participation and performance rates of third-grade and fifth-grade students with disabilities on the Virginia Standards of Learning (SOL) assessment in an urban school district during the first three years of SOL administration, (i.e., 1998, 1999, and 2000). Specifically, the study explored (a) participation and performance of students with disabilities on the SOL over time, (b) performance on the SOL by disability classification and grade level for 2000, and (c) participation and performance rates of students with disabilities as compared to rates of typical students. Quantitative methods of data analysis were used.

School Division Description

Oceanside Public Schools (OPS)* is a medium-sized urban district in Virginia that serves 33,000 students with an ethnic breakdown of 54% African American, 39% White, 4% Hispanic, 2% Asian, and 1% Native American. The average household income is $33,000 per year (Testing Department Management Information System [TDMIS], 2000). Forty-five percent of students are economically disadvantaged as measured by eligibility for the federal free or reduced cost lunch program (TDMIS, 2000). The district operates 32 elementary schools (pre-K-5 grade), eight middle schools (grades 6-8), five high schools, and two small nontraditional alternative high schools. Students with disabilities represent 10% of the student body or 3,267 students.

Students with learning disabilities comprise the largest disability category served. The majority of students with disabilities attend neighborhood schools with the exception

* The names of the school district and schools have been changed. Results of the study will be made available to the participating school district with unaltered school names.

of some students with low-incidence disabilities such as visual or orthopedic impairments that are clustered in schools throughout the city.

Population

Participants included all students with disabilities in grades three and five at Oceanside Public Schools during 1998, 1999, and 2000. Student data for all disability classifications were examined; however, the majority of data came from students with disabilities with the classifications of mental disabilities (MD), learning disabilities (LD), emotional disabilities (ED), and other health impairment (OHI). For the purpose of this study, it was assumed that students have been correctly classified by disability and were receiving the correct special educational services as determined through eligibility committees. In this study, each test administration represents the first time that participants were exposed to the SOL assessment with the exception of fifth-grade students, who took the 2000 SOL assessments and who may have taken the tests as third-graders in 1998.

Unlike many state departments, The Virginia Department of Education (VDOE) does not make a distinction between students with severe levels of mental retardation (i.e., trainable mental retardation) and less severe (i.e., educable mental retardation). The district studied does, however, make a distinction between the two groups and uses the term "disability" rather than "retardation." The severity level is an important distinction because students who have more severe cognitive disabilities may take an alternate assessment (DeMary, 2000), while students with less severe mental disabilities may take the general assessment with accommodations.

Instrumentation

The Virginia Standards of Learning Assessment is a state-developed criterion-referenced test used to assess students' mastery of SOL. The SOL for each grade from kindergarten through 12, outlines mastery criteria in each subject area. SOL tests are administered each year to students in grades three, five, and eight in English/language arts, math, science, history/social sciences, and technology. In addition, high school assessments have been developed for 11 core courses ranging from algebra I to world history (VDOE, February, 1999).

The SOLs employ a multiple-choice test format, with the exception of the writing test on which students write a response to a given prompt. The VDOE and Harcourt Brace Educational Measurements developed the SOL tests in cooperation with a Content Review Committee composed of educators with experience and knowledge in academic content areas. As part of the development process, each test question received Content Review Committee approval and was then field-tested. After a question had been field-tested, results were analyzed to determine its psychometric quality. Potential test questions (i.e., those yielding high test-retest reliability coefficients) were next passed to the Bias Review Committee for consideration. Questions that met this committee's criteria were added to the final bank of test questions (VDOE, February, 1999).

Assessment experts evaluated the 1998 Standards of Learning test for technical adequacy (i.e., validity and reliability). The Kuder-Richardson 20 (KR-20) was used as a statistical measure of test internal consistency except for the writing test where the Person Separation Reliability Test was used. All SOL subtests evidenced high reliability with coefficients ranging from .80 on fifth-grade history/social science to. 92 on eighth-grade

mathematics. The majority of the SOL tests demonstrated reliability above the .85 level (VDOE, February, 1999).

Research Questions

The following questions were investigated in this study:

1. Is there a significant difference in the proportion of students with disabilities who participated on the Virginia SOL in 1998, 1999, and 2000 when examined by grade level (3rd and 5th)?
2. Is there a significant difference in the proportion of students with disabilities who participated on the 2000 Virginia SOL when examined by placement (self-contained and resource)?
3. Is there a significant difference in the proportion of students with disabilities who participated on the Virginia SOL in 1998, 1999, 2000 when examined by disability classification (i.e., LD, ED, OHI)?
4. Is there a significant difference in students with disabilities performance on the 2000 Virginia SOL when examined by grade level (3rd and 5th)?
5. Is there a significant difference in students with disabilities performance on the 2000 Virginia SOL when examined by placement (self-contained and resource)?
6. Is there a significant difference in students with disabilities performance on the 2000 Virginia SOL when examined by classification (i.e., MD, LD, ED, OHI)?

Research Design

The study was designed to determine whether there was a significant difference in the participation and performance of students with disabilities on the Virginia SOL when examined by grade level, subject, and disability classification. Data were derived from SOL assessment administered under standardized conditions following guidelines set forth by the VDOE. Assessment results are returned to the state agency by the test publisher, and distributed to the school districts. The assessment results are maintained in district data files. Placement information regarding students with disabilities was obtained by examining each student's file using the district mainframe computer and hand recording the information. Data from these sources were entered in the Statistical Package for the Social Sciences (SPSS).

Analyses

The data were analyzed using two methods. For questions one and three, cross-tabulation chi-square tests were performed using SOL data from 1998, 1999, and 2000, while a cross-tabulation chi- square was performed on question two using only 2000 SOL data. For questions four, five, and six, only 2000 SOL data were used. Three separate MANOVAs were conducted on the SOL dependent measures mathematics and science: (a) 2 (Grade) x 3 (Classification), (b) 2 (Placement) x 3 (Classification), and (c) 2 (Placement) x 2 (Grade), with follow up post hoc analyses conducted as needed using the Games-Howell and the Tukey-B procedures.

CHAPTER IV

Results

Virginia Standards of Learning assessment data of students with disabilities were analyzed to determine the influence of classification and placement on participation and performance. This chapter presents the results from this investigation arranged in sections that correspond to the six research questions presented in Chapter III. For research questions one, two, and three, chi-square tests were conducted. For research questions four, five, and six, three factorial MANOVAs were conducted to ascertain the relationship between variables. Post hoc univariate ANOVA were run as needed. Following these results, an additional question presented in Chapter I will be discussed.

Participation Questions

Using data obtained from the 1998, 1999, and 2000 SOL assessments conducted in the selected school district, 23 cross-tabulation chi-square tests were performed to answer research questions one and three. An additional cross-tabulation was conducted using just 2000 SOL data to answer question two. Descriptive data for each question will be presented after each question before the results.

Question 1: *Is there a significant difference in the proportion of students with disabilities who participated on the Virginia SOL in 1998, 1999, and 2000 when examined by grade level (3rd and 5th)?*

Table 1

Combined SOL Participation by Grade Level for 1998, 1999, and 2000

		Participation		
		Yes	No	Total
Grade	Third	307	166	473
	Fifth	385	223	608
Total		692	389	1081

Presented in Table 1 is the total number of students with disabilities (i.e., LD, ED, OHI) in grade three and grade five for 1998, 1999, and 2000. Ten cross-tabulation chi-square tests were performed to determine differences in participation rates of students with disabilities by grade level. A two-way contingency table analysis was conducted to evaluate whether equivalent proportions of third-grade and fifth-grade students with disabilities took various SOL tests. Two independent variables were student grade, with two levels (third, fifth), and student participation, with two levels (students who took the test, students who did not take the test). Grade level and participation were found to be significant on five of the 10 cross-tabulation chi-square tests.

Proportions of third-grade and fifth-grade students who took the 1998 English SOL were .32 and .45, respectively. The number of students differed significantly (χ^2 (1, N = 344) = 5.535, p = .019). The probability of a student taking the 1998 English SOL was 1.4 times more likely when the student was in the fifth-grade as opposed to third-grade.

Proportions of third and fifth-grade students who took the 1999 English SOL were .58 and .69, respectively. The number of students differed significantly (χ^2 (1, N = 350) = 4.035, p = .045). Again, the probability of a student taking the 1999 English SOL was 1.2 times more likely when the student was in the fifth-grade as opposed to third-grade.

Proportions of third and fifth-grade students who took the 2000 English SOL were .59 and .73, respectively. The number of students differed significantly (χ^2 (1, N = 384) = 8.598, p = .003). The probability of a student taking the 2000 English SOL was 1.2 times more likely when the student was in the fifth-grade as opposed to third-grade.

Proportions of third and fifth-grade students who took the 1999 Science SOL were .70 and .81, respectively. The number of students differed significantly (χ^2 (1, N = 350) = 6.718, p = .010). The probability of a student taking the 1999 Science SOL was 1.2 times more likely when the student was in the fifth-grade as opposed to third-grade.

Proportions of third and fifth-graders who took the 2000 Math SOL were .82 and .73, respectively. The number of students differed significantly (χ^2 (1, N= 384) = 4.455, p = .035). The probability of a student taking the 2000 mathematics SOL was 1.1 times more likely when the student was in the third-grade as opposed to the fifth-grade.

Question 2: *Is there a significant difference in the proportion of students with disabilities who participated on the 2000 Virginia SOL when examined by placement (self-contained and resource)?*

Table 2

Overall SOL Participation Rates of Students with Disabilities by Placement

		Placement		Total
		Self-Contained	Resource	
Participated	Count	156	182	338
	Expected count	201.1	136.9	338
	% within grade level	55.9%	95.8%	72.1 %
Didn't participate	Count	123	8	131
	Expected count	77.9	53.1	131
	% within grade level	44.1%	4.2%	29.9%
Total	Count	279	190	469
	Expected count	279.0	190.0	469
	% within grade level	100%	100%	100%

A two-way table contingency was conducted to evaluate whether equivalent proportions of self-contained and resource students participated on the SOL. The two variables were student placement with two levels (self-contained, resourced) and student participation with two levels (students who took the test, students who did not take the test). The number of students differed significantly (χ^2 (1, $\underline{N}$ = 469) = 89.28, $\underline{p}$ < .001). Frequencies and percentages of SWD participation rates by placement are presented in Table 2. Proportions of self-contained and resource students participating on the SOL were .56 and .96, respectively. The probability of a student participating on the SOL was

1.7 times more likely when the student was in a resource placement than in a self-contained placement.

Question 3: *Is there a significant difference in the proportion of students with disabilities who participated on the Virginia SOL in 1998, 1999, and 2000 when examined by disability classification (LD, ED, OHI)?*

Table 3

Participation by Classification for Grades Three and Five for 1998, 1999, and 2000

		Participation		
		Yes	No	Total
Classification	LD	512	289	801
	ED	122	50	172
	OHI	58	50	108
Total		692	389	1081

Presented in Table 3 is the number of students in grade three and grade five according to classification (i.e., LD, ED, OHI) for 1998, 1999, and 2000. A total of 12 cross-tabulation chi-square tests were performed. In addition, a two-way contingency table analysis was conducted to evaluate whether equal proportions of students with LD, ED, and OHI took various SOL tests. The two variables were student classification with three levels (LD, ED, OHI) and student participation with two levels (students who took the test, students who did not take the test). On significant findings, follow-up pairwise comparisons were conducted to evaluate the difference among the proportions. The Bonferroni method was used to control for Type I error at the .05 level. Classification

and participation were found to be significant on four of the cross-tabulation chi-square tests.

On the 1999 Mathematics SOL tests (see Table 4) the proportions of students with LD, ED and OHI who took the 1999 Mathematics SOL were .68, .94, and .71, respectively. The number of students differed significantly (Pearson χ^2 (2, $\underline{N}$ = 350) = 2.279, $\underline{p}$ = .001). Significant pairwise differences were found between students with LD and ED and between students with OHI and ED. The probability of taking the 1999 mathematics SOL was 1.4 times more likely for students with ED than for students with LD. Students with ED were also 1.3 times more likely than students with OHI.

Table 4

Participation Comparisons by Classification on the 1999 Math SOL

Comparison	Pearson Chi-Square	p-value	critical p	Cramer's V
LD vs. ED	12.279	.001	.016	.19
LD vs. OHI	.549	.459	.016	.04
ED vs. OHI	11.897	.001	.016	.396

On the 1999 Science SOL test (see Table 5), the proportions of students classified as students with LD, ED, and OHI who took the SOL were .73, .92, and .81, respectively. The number of students taking the test differed significantly (Pearson χ^2 (2, $\underline{N}$ = 350) = 7.359, $\underline{p}$ = .025). Significant pairwise differences were found between students with LD and students with ED. The probability of a student taking the 1999 Science SOL was 1.3 times more likely for students with ED than for students with LD.

Table 5

Participation Comparisons by Classification on the 1999 Science SOL

Comparison	Pearson Chi-Square	p-value	critical p	Cramer's V
LD vs. ED	6.869	.009	.016	.147
LD vs. OHI	.843	.359	.016	.053
ED vs. OHI	1.760	.185	.016	.152

On the 1999 English SOL test (see Table 6), the proportions of students classified as students with LD, ED, and OHI who took the 1999 English SOL were .59, .96, and .62, respectively. The number of students differed significantly (χ^2 (2, N = 350) = 22.723, $p < .001$). Significant pairwise differences were found between students with LD and students with ED and between students with OHI and students with ED. The probability of a student taking the 1999 English SOL was 1.6 times more likely for students with ED than for students with LD. Students with ED were also 1.5 times more likely than students with OHI to take the test.

Table 6

Participation Comparisons by Classification on the 1999 English SOL

Comparison	Pearson Chi-Square	p-value	critical p	Cramer's V
LD vs. ED	22.701	.000	.016	.267
LD vs. OHI	.074	.786	.016	.016
ED vs. OHI	14.341	.000	.016	.434

On the 2000 mathematics SOL test (see Table 7),the proportion of students classified as students with ED, LD and OHI who took the 2000 mathematics SOL were .81, .74, and .59, respectively. The number of students differed significantly (χ^2 (2,367) = 9.828, p = .007). Significant pairwise differences were found between students with LD and students with OHI. The probability of a student taking the 2000 mathematics SOL was 1.3 times more likely for students with LD than for students with OHI.

Table 7

Participation Comparisons Mathematics by Classification on the 2000 SOL

Comparison	Pearson Chi-Square	p-value	critical p	Cramer's V
LD vs. ED	1.575	.209	.016	.070
LD vs. OHI	9.601	.002	.016	.182
ED vs. OHI	2.826	.093	.016	.155

Summary of Participation

There was a significant difference between the proportion of third-grade and fifth-grade students participated on five of the possible ten test / year combinations. The probability of participation was greater for fifth-grade than for third-grade students on the English tests for all three years and on the 1999 science test, and the 2000 mathematics test. The probability of a student participating on the SOL also was more likely when the student was in a resource rather than in a self-contained setting. Students with ED had the highest probability of taking the 1999 mathematics, science, and English SOL, while students with LD had the highest probability of taking the 2000 mathematics SOL.

Performance Questions

Prior to conducting the analysis on research questions four through six it was determined that several test areas could not be analyzed. In 1999, both fourth-grade and fifth-grade students participated in the history SOL assessment. The 1999 results published by the VDOE, however, did not differentiate participants by grade level. In year 2000 testing, fifth-grade students had taken the test the year before as fourth graders. Therefore, the history test was removed from the analyses. Further, the third-grade and fifth-grade English assessments are reported differently. Fifth-grade multiple-choice and writing sections of the test are separated and not all students take both tests. Because of these differences in test construction and score reporting across grade levels, third-grade and fifth-grade scores were not compared. Therefore, the English SOL, was also taken out of the analysis.

A large disparity in cell size was found when all three factors (grade, classification, and placement) were included. Notably, there were several empty cells within the multiple disabilities (MD) group. As a result, the sample classified as MD was too small to analyze and was removed from the analyses when examining by classification. Three separate factorial MANOVAs were conducted on the SOL dependent measures, mathematics and science. The MANOVAs were: (a) 2 (Grade) x 3 (Classification), (b) 2 (Placement) x 3 (Classification), and (c) 2 (Placement) x 2 (Grade). Following are the analyses of questions four through six. Descriptive data for each question will be presented after each question before the results.

Question 4: *Is there a significant difference in students with disabilities performance on the 2000 Virginia SOL when examined by grade level (3rd and 5th)?*

Table 8

Means and Standard Deviations for Third – Grade and Fifth-Grade SWD on the Mathematics and Science SOL

Grade		Math	Science
Third	N	129	136
	Mean	376.4	394.8
	Std. deviation	68.4	62.7
Fifth	N	156	175
	Mean	361.8	379.3
	Std. deviation	48.5	43.5
Total	N	285	311
	Mean	368.4	386.1
	Std. deviation	58.7	53.20

Table 8 shows the means and standard deviations for grade three and grade five SWD on the mathematics and science SOL. The MANOVA yielded no significant mean differences when data were examined by grade level.

Question 5: *Is there a significant difference in students with disabilities performance on the 2000 Virginia SOL when examined by placement (self-contained and resource)?*

Table 9

Means and Standard Deviations for SWD in Self-Contained and Resource Placements on the Mathematics and Science SOL

Placement		Math	Science
SC	N	113	140
	Mean	351.6	374.8
	Std. deviation	5.85	5.33
R	N	172	171
	Mean	380.1	402.2
	Std. deviation	4.47	4.07
Total	N	285	311
	Mean	368.9	391.1
	Std. deviation	5.89	5.41

Presented in Table 9 are the means and standard deviations for SWD in self-contained and resource placements on the mathematics and science SOL. The multivariate test on the Placement x Grade Model yielded a significant main effect for placement, $\Lambda = .929$, $F(2,258) = 9.815$, $p < .001$ ($\eta^2 = .07$). The interaction between placement and grade was nonsignificant. Univariate tests for placement were significant for both the science SOL, $F(1,259) = 16.662$, $p < .001$ ($\eta^2 = .06$), and the mathematics SOL, $F(1,259) = 15.032$, $p < .001$ ($\eta^2 = .05$). Because the placement factor only has two

levels (i.e., 1df) there was no need to conduct post hoc analyses. Instead, group differences were identified by consulting the marginal means table. This revealed that students in resource placements (M = 380.14, SD = 4.47) scored significantly higher on the mathematics SOL than students in self-contained placements (M = 351.60, SD = 5.85). Students with resource placements (M = 402.18, SD = 4.07) also scored significantly higher than students with self-contained placements (M = 374.81, SD = 5.33) on the science SOL

Question 6: *Is there a significant difference in students with disabilities performance on the 2000 Virginia SOL when examined by classification (LD, ED, OHI)?*

Table 10

Means and Standard Deviations on the Dependent Variable Science for the Three Disabilities Classifications (LD, ED, OHI)

Classification	Science	
	M	SD
LD	397.9	3.83
ED	363.9	7.40
OHI	408.4	10.8

Table 10 presents the means and standard deviations for students with LD, ED, and OHI on the science SOL. Two models were run yielding similar results. The first model was a multivariate Grade x Classification test, which was significant for the classification main effect, $\Lambda = .917$, $F(4,504) = 5.612$, $p < .001$ ($\eta^2 = .04$). Tests for the grade main effect and the Grade x Classification interaction were nonsignificant. A

univariate ANOVA for classification was significant for science SOL F (2,253) = 9.535, p <.001 (η^2= .07). Levene's F for the univariate test was significant, F(5,253) = 4.665, p <.001; therefore, equal error variance across groups was not assumed and post hoc tests were conducted using the Games-Howell test. Post hoc analyses demonstrated that students with ED (M = 363.93, SD = 7.40) scored significantly lower than students with LD (M = 397.93, SD =3.83) and students with OHI (M = 408.41, SD = 10.84) on the science SOL.

Table 11

Means on the Dependent Variable Science for the Disability Classifications of LD, ED, OHI

	Classify	N	Subset 1	Subset 2
Tukey B	ED	50	364.1	
	LD	186		396.6
	OHI	23		408.6

A second model was run to test Placement x Classification. The multivariate test was significant for the classification main effect, Λ = .931, F (4,504) = 4.59, p = .001, (η^2= .04). Presented in Table 11 are the means on the dependent variable for LD, ED, OHI. Tests for the placement main effect and the Classification x Placement interaction were nonsignificant. The univariate analysis of variance for classification yielded significance on the Science SOL, F (2, 253) = 5.68, p = .004 (η^2= .04). Levene's F for the univariate ANOVA was nonsignificant, F (5,253) = 1.901, p = .095. Thus, the Tukey-

B test was used for post hoc comparisons. Post hoc tests revealed that ED students (M =364.10) scored lower than LD (M= 396.64) and OHI (M =408.61).

Summary of Performance

Analyses related to the three performance questions yielded the following information. No significant difference was found for student performance on the SOL assessment when examined by grade level. Students in resource placements scored significantly higher than students in self-contained placements on both the 2000 mathematics and science SOL. Students with ED scored significantly lower than students with LD and students with OHI on the 2000 Science SOL.

Additional Research Question

An additional question examined was mentioned in Chapter 1 concerning participation by and performance of students with disabilities compared to the overall participation and performance of typical students on the SOL. This question was not addressed in the analyses discussed earlier in this chapter. Data for this question were derived in the same manner as for the previous questions. Discussions of these data will be in terms of trends; however, no inferences will be made.

How does the overall participation and performance of students with disabilities compare to the overall participation and performance of typical students on the SOL assessment in grades three and five for 1998, 1999, and 2000?

As would be expected, the percentage of typical students participating on SOLs far exceeds the percentage of students with disabilities who participated. In the identified school district, according to the SOL data, the percentage of typical students who did not participate in the elementary SOL assessment was less than 5%, with the most prevalent

reason for nonparticipation being student absences. Other reasons for nonparticipation by typical students included limited English proficiency, medical reasons, refusal to participate, and disruptive behavior.

By comparison, participation percentages for students with disabilities varied by grade level, year, and tests within a given year (see Table 12). Each year the number of students with disabilities increased at both the third and the fifth-grade in the participating school district, however, SOL participation rates for students with disabilities did not increase. In fact, on many tests between 1998 and 2000 the rates of participation declined.

Thus, the percentages of participation by third-grade students with disabilities were lower in 2000 than they were in either 1998 or 1999. The participation rate for third-grade students fluctuated slightly from 1998 to 1999 with the greatest increase in mathematics (7%). There was a decline, however, in participation in science (5%). The participation rates showed decreases between 1999 and 2000 with the largest decrease (27.9%) in mathematics. The highest participation rates at the third-grade level were in mathematics for both 1998 and 1999, while in 2000 history had the highest percentage of students participating. Science had the second highest percentage of participation for all three years at the third-grade level.

For the fifth-grade, participation percentages were higher in 2000 than in 1998, with the exception of mathematics where there was a (5%) increase; the overall participation rate for students with disabilities for 2000 was lower than for 1999. For all three years, science had the highest percentage of participation at the fifth-grade level, while mathematics had the lowest percentage of participation for two out of the years.

Table 12

Participation Rates by Students with Disabilities on the SOL Assessments

	Grade 3			Grade 5		
	1998	1999	2000	1998	1999	2000
Total # of SWD	281	302	356	281	287	301
English						
Number tested	173	190	128	134	187	160
Percent tested	61.6	62.9	36.0	47.7	65.1	53.2
Mathematics						
Number tested	196	213	152	141	115	162
Percent tested	69.8	70.5	42.7	46.6	52.3	53.8
Science						
Number tested	193	206	160	147	213	185
Percent tested	68.7	68.2	44.9	52.3	74.2	61.5
History						
Number tested	189	204	163	144	-	-
Percent tested	67.3	67.5	45.8	51.2	-	-
Writing						
Number tested	-	-	-	134	176	163
Percent tested	-	-	-	47.7	61.3	54.2

Note. History scores could not be obtained for 1999 and 2000 at the fifth-grade level.

English: Reading/Literature/Research/Writing are multiple-choice scores. Fifth-grade writing scores are not combined with English scores.

In summary, percentage of participation during the first three years of the Virginia SOL administration remained relatively constant for typical students; however, for students with disabilities these percentages fluctuated varying by grade, by year, and by subject.

As with participation, the performance rates of typical students exceeded that of students with disabilities (see Table 13). Not only did typical students demonstrate higher performance on all tests for all three years, with the exception of the 1998 third-grade history test, they also showed different performance trends on many of the tests. For example, at third-grade on all but the mathematics assessment, the performance of students with disabilities increased from 1998 to 1999 but decreased from 1999 to 2000. Mathematics performance scores declined each year for these students while the performance of typical students increased each year.

Table 13

Third-grade Students Tested on the Virginia SOL

	Year	1998	1999	2000	1998	1999	2000
Mathematics	Total tested	196	213	152	2341	2340	2451
	Total passed	85	88	48	1411	1460	1574
	Percent passed	43.4	41.3	31.6	69.2	62.4	64.2
Science	Total tested	193	206	160	2315	2328	2440
	Total passed	86	95	70	1333	1520	1719
	Percent passed	44.6	46.1	43.8	57.6	65.3	70.5
History	Total tested	189	204	163	2322	2333	2439
	Total passed	86	81	62	908	1423	1579
	Percent passed	45.5	39.7	38.0	39.1	61.0	64.7
English	Total tested	173	190	128	2326	2344	2447
	Total passed	50	60	40	1120	1313	1390
	Percent passed	28.9	31.6	31.3	48.2	56.0	56.8

Performance at the fifth-grade level declined for both typical students and students with disabilities from 1999 to 2000 on three of the four tests (see Table 14). Both groups showed improved performance on the mathematics tests. Performance scores for 2000 for students with disabilities dropped below the 1998 scores on two tests.

The performance scores did drop for typical students in 2000, but only slightly below the 1999 scores and never down to the 1998 levels. While the trends of performance were similar the actual percentage of student that passed was far greater for typical students.

Table 14

Fifth-grade Students Tested on the Virginia SOL

		Special Education			General Education		
	Year	1998	1999	2000	1998	1999	2000
Mathematics	Total tested	141	191	128	2201	2111	2284
	Total passed	27	40	40	998	1038	1298
	Percent passed	19.1	20.9	31.3	45.3	49.2	56.8
Science	Total tested	147	213	185	2200	2103	2276
	Total passed	53	78	43	1210	1334	1276
	Percent passed	36.1	36.6	23.2	55.0	63.4	56.1
English	Total tested	134	187	160	2201	2113	2286
	Total passed	53	70	40	1516	1408	1439
	Percent passed	39.6	37.4	25.0	68.9	66.6	62.9
Writing	Total tested	134	176	163	2173	2097	2280
	Total passed	30	75	45	1290	1650	1648
	Percent passed	22.4	42.6	27.6	59.4	78.7	72.3

Summary

Through the use of chi-square and MANOVA, the participation rates and performance of students with disabilities on the Virginia SOL assessment were examined to determine the influence of classification and placement. Significant findings showed that classification and placement influence participation and performance. These findings, along with participation and performance trends, will be discussed in the following chapter.

CHAPTER V

Findings and Conclusions

Due to concerns regarding the educational opportunities of students with disabilities in this era of reform, amendments to the Individuals with Disabilities Education Act ([IDEA], 1997) were designed to ensure that students with disabilities would not be excluded from statewide assessments. These new provisions reflect a shift in emphasis from mere access to a focus on the quality of educational services that students with disabilities receive by ensuring greater access to the general curriculum and participation in statewide assessments, public reporting, and accountability (Almond et al., 1997; Ysseldyke et al., 1998). Under IDEA, violations of these provisions will prevent states from continuing to receive federal special education funds. Despite such severe sanctions, questionable practices continue to exempt students with disabilities from the accountability process, in large measure because of concerns that their scores will reflect poorly on districts and states (Almond et al., 1997; Kearns et al., 1999).

This study was undertaken to investigate the participation and performance of students with disabilities on Virginia SOL assessments. It is hoped that information from this study will enable the cooperating district and others to make more informed judgments related to students with disabilities to ensure improved programs. By examining participation and performance data and examining trends of participation and performance, decision makers can refine policies related to students with disabilities. In this chapter the findings of this investigation will be discussed. First, the influence of classification and placement on participation will be examined, followed by a discussion of the influence of classification and placement on performance. Finally, the study

limitations, implications for special education, and recommendations for future investigations will be presented.

Participation in the Assessment Process

In Virginia, students participate in statewide SOL assessments at grades three, five, eight, and at the end of selected high school courses. Annually, more than 95% of general education students participated in these assessments at the elementary level while participation rates for students with disabilities on these assessments was substantially lower. According to Elliott and colleagues (1998), 85% of students with disabilities are able to participate on high-stakes assessments with or without accommodations. Participation is the first step towards improved performance.

Effects of Classification on Participation

An examination of participation (i.e., students who took the test, students who did not) by classification (i.e., LD, ED, OHI), subject (i.e., mathematics, science, English, history), and year (i.e., 1998, 1999, 2000) revealed significant differences on four of 12 possible variable combinations. Students with ED had the highest participation rates on the 1999 mathematics, science, and English tests when compared to students with LD and OHI. In 2000, however, students with LD had the highest participation rates. There is no clear evidence to suggest why students with ED participated at a higher rate on three of the 1999 tests. One speculation could be that the number of teachers involved in the decisions-making process for 45 students with ED was much smaller than the number of teachers for 247 students with LD. For whatever reasons, the teachers of students with ED included their students in the assessment process in 1999 at a higher rate than

teachers of students with LD. In this district students with OHI are instructed in either LD or ED placements, so the teacher in that placement might affect their participation.

How assessment participation decisions are made is an important issue because too often participation decisions are made without the complete input of an IEP committee (Elliott et al., 1998) or on short notice based solely on the judgment of the teacher or principal (Almond et al., 1997). According to Virginia policy, decisions pertaining to the participation of students with disabilities in the SOL assessments are the responsibility of the IEP committee or 504 committee and should be made at the IEP meeting, which precedes the SOL testing (Consortium for Policy Research in Education, 2000).

Examination of participation by grade level (i.e., third, fifth), subject (i.e., mathematics, science, English, history), and year (i.e., 1998, 1999, 2000) showed significant differences on five of 10 possible variable combinations. Students at the fifth-grade level were the most likely to participate in all five tests (i.e., English in 1998, 1999, 2000; science in 1999; and mathematics in 2000). In this connection, it is worth noting that the fifth-grade students who participated in the 2000 testing process were the first group to complete two years of state assessments. This group completed the first round of testing as third-grade students in 1998. This may be an important consideration because familiarity may increase participation rates as students, families, and teachers become more knowledgeable about the assessment process.

These data illustrate interesting trends in participation for students with disabilities in this district. In third-grade, participation fluctuated slightly between 1998 and 1999 but decreased substantially in 2000. For example, in 1999 the percentage of

students with disabilities participating in the third-grade mathematics test was 70.5%, while the 2000 participation rate dropped to 42.7%. Participation also declined for fifth-grade students between 1999 and 2000. The largest change was in science, where participation decreased from 74.2% in 1999 to 61.5% in 2000. These declines may be attributed to perceived pressures placed on schools concerning student performance. Public pressure on school principals may have caused them to ignore a district directive to include more students with disabilities in testing. Many educators think that greater participation of students with disabilities in assessments will decrease overall scores school and district; therefore, some are reluctant to include these students (Almond et al., 1997; Zlatos, 1994).

Effects of Student Placement on Participation

Student placement (i.e., self-contained or resource) also played a role in participation. For example, students with disabilities were 1.7 times more likely to participate on the SOL assessment if they received special education services in resource programs rather than self-contained placements. It can be assumed that students receiving resource services are less affected academically by their disabilities than students who need more restrictive placements. Consequently, resource students may be more likely to participate on standards-based assessments (McDonnell et al., 1997).

Summary of Participation

Participation on the SOL by SWD is affected by classification and placement. Students with ED had the highest participation in 1999 on mathematics, science, and English tests. Students in grade five participated at a higher rate than students in grade three. Students in resource placements were more likely to participate on SOL

assessments than students in self-contained placements. As will be discussed later in this chapter, more research needs to be conducted on the effects of placement on student participation.

Performance on Assessments

This section will examine the influence of classification and placement on performance. As stated in Chapter IV, the analysis of performance was conducted only on the mathematics and science tests because of complications with the reporting of the fifth grade history assessment and format differences of the English tests. Discussion of the trends data, however, includes third-grade mathematics, science, history, and English and fifth-grade mathematics, science, English, and writing.

Effects of Classification on Performance

Performance on the SOL assessment varied by student classification, with LD and OHI scoring significantly higher on the 2000 SOL than students with ED. This is a puzzling finding because it is often assumed that students with ED have fewer academic learning difficulties than students with LD or OHI. One reason may be that the academic performance of some students with ED is adversely affected by the presence of more than one disability (Salend, 2001). For example, students in the early grades having academic trouble may be identified at having a LD, OHI or may not be identified as having a disability. Later, their frustration with schoolwork may manifest as behavioral or emotional problems that further impede their academic performance. Often these students are reclassified as ED as their primary disability, so by fifth-grade many of these students also have significant learning problems. The fact that students receive special educational services because their emotional disability adversely affects academic

performance would lead many to think that this would also affect their ability to perform well on assessments.

Effects of Placement on Performance

Performance scores for students in resource placements were significant when compared to those of students in self-contained classrooms on the science and mathematics assessments. As for participation, it can be assumed that students receiving services in self-contained settings experience more academic problems because of their disabilities; therefore, performance scores are lower. Placement findings from this study should be viewed cautiously, however, because it was impossible to determine in which placement instruction took place. For example, a student may have received mathematics and science instruction in general education and English and history in a resource setting. Depending on accommodations written into the student's IEP, he or she might take all four SOL tests in either classroom. This situation would not be evident by merely examining the test data. Until test results can be matched to student placement during instruction and during assessment, the actual effects of placement will not be known.

When examining performance trends, this study found that at the third-grade level, scores of typical students increased each year while the performance of students with disabilities increased initially between 1998 and 1999, and then decreased in 2000 to rates lower than those in 1998. At the fifth-grade level, while the actual performance of typical students was higher than that of students with disabilities, the pass rate trends were similar. For example, both groups of students increased in mathematics performance between 1998 and 2000, and both groups showed an initial increase in writing, English, and science performance between 1998 and 1999. However,

performance dropped in 2000 for both of these groups in all three subjects. While the declining scores were evident for both groups, the rate of decline was greater for students with disabilities between 1999 and 2000 than for typical students.

The number of students with mental disabilities (MD) in this study was too small to be statistically analyzed, however, raw data on these students provide some interesting points to consider. In 2000, of the 43 third-grade and 36 fifth-grade students with MD only four and six, respectively, participated in the assessment process. Of the 10 total students who took the SOL, only two scored above the 400 point passing mark on any of the four tests. One third-grade resource student with MD scored 451 in mathematics, 420 in science, 405 history and did not take the English assessment. Similarly, a fifth-grade resource student with MD scored 367 on mathematics, 427 in science, and 456 in English and did not take the writing assessment. The remaining eight students had scores ranging from 292 in writing to 367 in mathematics. These data suggest that some students with MD, given appropriate accommodations, can pass SOL assessments. In fact, some students with MD may be more likely to pass these assessments than typical students who are "slow learners" and who do not have access to accommodations. In addition, when students with MD score well above the cut score, questions concerning the appropriateness of classification, instruction, and accommodations come to mind and warrant further investigation.

Summary of Performance

Performance on the SOL assessment varied by student classification with students with LD and OHI scoring higher than students with ED. The classification of MD included too few students to warrant analysis of performance. The study found

performance scores for students in resource placements to be significant when compared to students in self-contained classrooms on the science and mathematics assessments. As will be discussed later, further research needs to be conducted on the effects of classification and placement on performance on standard-based assessments.

Limitations of Study

Clearly, examining SOL assessment data from a single school district was a limitation of this study. A larger sample would have also made it possible to analyze data on students with low-incidence disabilities. Not only does small sample size affect the analysis, it also leads to issues of confidentiality, because of the easy identification of individual students in low-incidence groups. For example, in some disability classification categories only a few several students participated in the assessments. In these instances, it is difficult to ensure the confidentiality of individual students. In addition, the uniqueness of this urban, minority-majority district makes generalizability more difficult because of other factors that may be affecting student performance. According to 1999-2000 demographic data for Oceanside Public Schools (OPS), 49% of students receive free or reduced-cost lunch and research shows that students from low socioeconomic families are more likely to perform poorly on standardized tests then other students.

The use of extant data in this study limited potential analyses. The manner in which these data were available did not allow for some analyses, data coding issues also emerged. For example, some student data were coded incorrectly; some students were given inconsistent disability codes on different tests. Another common coding error occurred when students' disability and placement codes did not match codes regarding

time receiving services. For example, a code that means ED self-contained might be matched incorrectly with the code that means receiving 0-20% special education services. Coding errors were corrected by crosschecking all student information with district personnel. Another consideration when using an extant database is whether to use the December 1 Federal Child Count or the test day count to determine the number of students with disabilities who participated. The December 1 data may be more accurate because school districts receive federal funding based on these figures (Thompson et al., 1999). However, the disadvantage of the December 1 data and spring enrollment data is that student numbers change as a result of many factors (i.e., student movement in or out of the district, changes in eligibility status). Yet using a spring count, may be inaccurate because of loopholes such as changing a student's grade level just before testing, or through clerical errors as students move between schools. Research conducted by Almond and colleagues (1997), found that participation decisions for students with disabilities were made inconsistently and often the week before testing.

Implications for Special Education

The purpose of including students with disabilities in standards-based assessments is to ensure continuous improvement in the educational programs of these students. Consequently, it is essential that SOL data concerning the participation and performance of these students be carefully examined. Findings from this study suggest that school districts need to consider these factors more carefully. Six implications for practice emerged and are presented in the following section. These implications are important because of the impact they have for the participation and performance of students with disabilities on high-stakes assessments.

First, beginning with 2001-2002 IEPs, all Virginia students with disabilities will participate in the state accountability system on either the SOL tests or on the alternate assessment; no longer will students be exempted completely from testing (DeMary, 2000). Because of concerns about school performance, situations may exist where students with disabilities are not included on assessments to the maximum extent appropriate. For example, some practitioners may look for ways to minimize participation by including students with disabilities on a limited number of tests. Participation in one test fulfills the letter of the law but not the spirit.

Second, use of the Virginia Modified Standard Diploma (MSD) should be monitored closely. Originally, this new diploma was developed to offer all students an alternative to the Virginia Standard and Advanced diplomas, both of which require satisfactory performance on SOL end-of-course tests. The MSD requires students to pass the eighth-grade mathematics and reading SOL assessments and to continue to develop occupational competencies. Recently, the VDOE decided that the MSD would only be offered to students with IEPs (VDOE, July, 2000). Some educators and policymakers fear that this new diploma will be considered "second-class" and will encourage schools to circumvent higher standards for students with disabilities. Such a move makes one wonder if students are offered a less valuable diploma option will schools use this diploma "track" as a way to get some students with disabilities out of the end-of-course assessments and keep them from earning the standard or advanced diploma?

Third, another change that may impact the participation and performance of students with disabilities is the use of neighborhood schools. This school year, OPS returned students with disabilities to their home-zoned schools. Prior to this time many

students with disabilities were clustered at specific schools. This resulted in many students going to schools outside of their normal attendance zone and often having to change schools from year to year. It is likely that these disruptions have had some effect on student performance (Special Education Director, personnel communication, May 2000). For example, this practice may have affected school-level commitment to these students and to special education programs housed at the various sites. It may also have lessened parent participation in school meetings and activities because of distance, transportation difficulties, and complications from having children who attend different schools (McDonnell et al., 1997). These factors may have heightened parent feelings of alienation. It would be interesting to see what impact, if any, attendance at neighborhood schools has on the future participation and performance of students with disabilities on the SOL assessments in this district.

Fourth, SOL data, as reported to districts and schools, can be disaggregated into test subcomponents (Hanny, 1999). For example, the mathematics standards, kindergarten through eighth grade, are divided into seven areas such as number and number sense, measurement, and probability and statistics. This information can help schools identify students with specific academic needs and focus interventions on targeted areas of individual student needs as they prepare to retake some failed tests. Principals and special education supervisors can use VDOE software to create actual performance profiles for individual students. Another important use of this information is for building-level leadership teams to examine the data to assist in decision making regarding class loads, teacher and student assignments, and instructional and IEP decisions, which can help in professional development plans (McDonnell et al., 1997;

Ysseldyke et al., 1998). Teachers may need professional development on the use of SOL data to improve decision-making concerning IEP goals and objectives and classroom instruction (Elliott et al., 1998). In addition, the disaggregated data can be examined to determine if there are trends of exclusion by school, grade, placement, and classification.

Fifth, according to Thompson and Thurlow (1999), some families and educators have the perception that standards-based assessment is irrelevant to students with disabilities. Especially at the elementary level, they may not see the connection between standards-based assessments, achievement, and high-school graduation. Clearly, the large number of students found not taking the tests in OPS suggests that further work is needed to ensure that decisions concerning SOL participation are made thoughtfully at IEP meetings by well-informed team members. Written communications as well as teacher and family preparations are needed to further inform all constituents about the importance of the SOL assessments (McDonnell et al., 1997).

Finally, SOL test results are reported in newspapers and school accreditation is linked directly to tests scores. Consequences attached to district and school performance are barriers in the inclusion of students with disabilities on statewide assessments (Kantrowitz & Springen, 1997; Thompson & Thurlow, 1999) because principals and teachers are under pressure for students to perform well. In addition, to exclusion from the actual testing anecdotal evidence shows that students with disabilities are also being left out of the after-school enrichment activities used to improve scores (A. G. Rivera, personal communication, April 2000). The rationale for this exclusion is that students with disabilities already receive extra help or that their scores are too low to be improved significantly and that, enrichment resources therefore, are better spent on others.

Educators and families must be vigilant to ensure that the pressure for high scores does not lead to exclusion of students with disabilities from the same opportunity to participate in after-school SOL enrichment activities as typical students. Finally, pressure on educators can affect morale, preventing teachers from wanting to work with low-achieving students and causing teachers to move to higher performing schools or leave the profession (Hardy, 2000).

Recommendations for Further Research

Continued research on the participation of students with disabilities in the Virginia SOL and other high-stakes tests is needed. IDEA 1997 established provisions to protect the rights of students with disabilities to general education access and accountability. It is important to know if the spirit of the law is being carried out or if school districts are using loopholes to exclude students with disabilities because of mounting expectations for high student performance. Special education referral rates may increase under this intense pressure as educators try to provide students with more services and accommodations (Erickson et al., 1996; Vanderwood et al., 1998). As more students with disabilities are included on the SOL, research will be needed to determine the performance of these students. Will overall performance scores for students with disabilities increase as these students gain greater access to the general curriculum or will performance scores decrease, as students with more significant disabilities are also included in the assessment process?

Findings from this study also suggest that student placement can play a key role in participation and performance on standards-based testing. To determine the role that placement plays in student achievement, investigations are needed where participation

and performance are matched with actual student placement for instruction for each test subject. Once participation and performance are matched to actual placements, school districts and schools can use the data to improve programs. Although this study did not examine accommodations, the noted lack of consistency in coding disability and placement brings into question the coding of accommodations and their correspondence to the IEP. Future research should examine the correlations between accommodations listed on student IEPs and actual daily use in classroom instruction, and assessment.

Conclusion

At present, a high school diploma is the culminating reward for public education students. There is no other equal alternative. For these reasons, it is necessary to ensure that as many students with disabilities as possible earn standard high school diplomas. Part of that requirement is to pass six end-of-course SOL assessments at the high school level. Critics argue that multiple-choice standards-based assessments, such as the SOL, are inappropriate, unfair, and do not give a complete picture of students' academic ability. Regardless, that is the current assessment method in Virginia, and it would be unconscionably not to give students with disabilities every opportunity to succeed on these assessments. Even in the elementary grades, depriving students of the general education curriculum and /or assessment opportunities is setting the pattern for school failure.

While results of this study suggest many areas for improvement for education quality and assessment of students with disabilities, it should be remembered that just over 25 years ago access to public education for students with disabilities was the goal. Although the inclusion of students with disabilities in statewide testing has met with

some resistance, the rate of participation has increased (Thompson & Thurlow, 1999). Participation measures mandated in IDEA 1997 will likely increase the participation of students with disabilities on high-stakes assessments. In turn, this will increase the likelihood that students with disabilities have better access to the general curriculum and that schools become more willing to include students with disabilities in all aspects of curriculum and instruction. As assessment continues, school districts need to continue to study the participation and performance of students with disabilities because of the implications this information will have on other students with learning problems.

References

Algozzine, B., Crews, W. B., & Stoddard, K. (1987). Minimum competency testing and employability of learning disabled adolescents. Gainesville: Florida Department of Special Education.

Almond, P., Tindal, G., & Stieber, S. (1997). Linking inclusion to conclusions: An empirical study of participation of students with disabilities in statewide testing programs (NCEO Oregon Report 1). Minneapolis, MN: NCEO Publications Office. Retrieved April 21, 1999 from the World Wide Web: http://www.coled.umn.edu/NCEO/OnlinePubs/OrReport1.html

Ayers, W. (2000) The standards fraud. In J. Cohen & J. Rodgers (Eds.), Will standards save public education? (pp. 64-69). Boston: Beacon Press.

Bailey, D. B., Jr., & Wolery, M. (1984). Teaching infants and preschoolers with handicaps. Columbus, OH: Merrill.

Bracey, G. W. (1995). Final exam: A study of the perpetual scrutiny of American education. Historical perspectives on assessment, standards, outcomes, and criticism of U.S. public schools. Bloomington, IN: TECHNOS Press.

Brown v. Board of Education, 347 U.S. 483 (1954)

Carey, D., & Reynolds, M. (1999). Virginia's standards of learning do they measure up? Shafer Court Connections, 9-13.

Center for Educational Reform. (2000). Fifteen years after a nation at risk. Washington, DC: Author. Retrieved March 15, 2000 from the World Wide Web: http://edreform.com/pubs/then&now.htm

Chase, B. (2000). Making a difference. In J. Cohen & J. Rodgers (Eds.), Will standards save public education? (pp. 40-43). Boston: Beacon Press.

Christie, M. (1998). Why Virginia needs school standards. Washington Post. Retrieved December 7, 1999 from the World Wide Web: http://www.pen.k12.va.us/VDOE/VA_Board/chris1.html

Consortium for Policy Research in Education (2000). Assessment and accountability in the fifty states: 1999-2000, Virginia assessment and accountability profile. Author.

Corbett, H. D., & Wilson, B. L. (1991). Testing, reform and rebellion. Norwood, NJ: Albex Publishing Corporation.

DeMary, J. L. (2000). Participation of students with disabilities in the standards of learning assessment (Supts. Memo #2). Retrieved December 1, 2000 from the World Wide Web: http://www.pen.k12.va.us/VDOE/suptsmemos/2000/int002.html

Dettmer, P. A., Dyck, N. T., & Thurston, L. P. (1996). Consultation, collaboration, and teamwork for students with special needs. Boston: Allyn and Bacon.

Duttweiler, P. C., & McEvoy, U. (1996). Standards-based reform: What is missing? Retrieved February 21, 2000 from the World Wide Web: http://virtual.clemson.edu/clarks

Elliott, J. L., Thurlow, M. L., & Ysseldyke, J. E. (1996). Assessment guidelines that maximize the participation of students with disabilities in large-scale assessments: Characteristics and considerations (Synthesis Report 25). Minneapolis: University of Minnesota, National Center on Educational Outcomes.

Elliott, J. L., Ysseldyke, J. E., Thurlow, M. L., & Erickson, (1998). What about assessment and accountability? Practical implications for educators. Teaching Exceptional Children(5), 20-27.

Erickson, R., Thurlow, M., & Ysseldyke, J. (1996). Neglected numerators, drifting denominators, and fractured fractions: Determining participation rates for students with disabilities in statewide assessment programs (NCEO Synthesis report 23). Minneapolis, MN: NCEO Publications Office. Retrieved November 22, 1999 from the World Wide Web: http:// www.coled.umn.edu/nceo/OnlinePubs/synthesis 23.html

Finn, C. E., & Petrilli, M. J. (Eds.). (2000). The state of state standards 2000. Washington, DC: Thomas B. Fordham Foundation.

Goor, M. B. (1995). Leadership for special education administration: A case-based approach. Philadelphia: Harcourt Brace College Publishers.

Hanny, R. J., (1999). Using the sample SOL aligned curricula. Retrieved February 1, 2001 from the World Wide Web: http://www.pen.k12.va.us/VDOE/Instruction/wmstds/unpack/introhanny.shtml

Hardy, L. (2000). The trouble with standards. American School Board Journal, 187(9), 22-26.

Haring, N. G., McCormick, L., & Haring, T. G. (1994). Exceptional children and youth (6^{th} ed.). New York: Macmillan.

Harrington-Lueker, D. (2000). The uneasy coexistence of high stakes and developmental practice. The School Administrator, 57, 6-11.

Hess, F. M., & Brigham, F. (2000). None of the above. American School Board Journal, 187(6), 26-29.

Hirsch, E. D. (2000). The test we need. Education Week on the WEB. Retrieved March 7, 2000 from the World Wide Web: http://www.edweek.com/ew/ewstory.cfm?slug=21hirsch.h19

Hoff, D. J. (2001). Missing pieces. Education Week on the WEB. Retrieved January 12, 2001 from the World Wide Web: http:// www.edweek.com/sreports/qc01/articles/qc01story.cfm?slug=17tools.h20

Hurwitz, N., & Hurwitz, S. (2000). Tests that count: Do high-stakes assessments really improve learning? American School Board Journal, 187(6), 21-25.

Jennings, J. F. (1998). Why national standards and tests? Politics and the quest for better schools. Thousand Oaks, CA: SAGE Publications, Inc.

Jones, G. M., Jones, B. D., Harden, B., Chapman, L., Yarbrough, T., & Davis, M. (1999). The impact of high-stakes testing on teachers and students in North Carolina. Phi Delta Kappan, 81(3), 199-203.

Jones, R. (2000). Making standards work: Researchers report effective strategies for implementing standards. American School Board Journal, 187(9). 27-31.

Kaiser, J. S. (2000).Are high-stake tests taking control? Looking beyond test scores to maintain middle level practices into the new millennium. Schools in the Middle, 9(7), 18-21.

Kantrowitz, B., & Springen, K. (1997). Why Johnny stayed home. Newsweek. Retrieved November 8, 1999 from the World Wide Web: http://www.ldonline.org/ld_indepth/special_education/johnny.html

Kearns, J. F., Kleinert, H. L., & Kennedy, S. (1999). We need not exclude anyone. Educational Leadership, 56(6), 33-38.

Kirk, S. A., Gallagher, J. J., & Anastasiow, N. J. (1993). Educating exceptional children (7th ed.). Boston: Houghton Mifflin.

Kohn, A. (1999). The schools our children deserve: Moving beyond traditional classrooms and "tougher standards." Boston: Houghton Mifflin Company.

Koretz, D. (1997). The assessment of students with disabilities in Kentucky (CSE Tech. Rep. No. 431). Los Angeles, CA: CRESST/RAND Institute of Education and Training.

Ladd, H. F. (Ed). (1996). Holding schools accountable: Performance-based reform in education. Washington, DC: The Brookings Institution.

Lemahieu, P. G., & Foss, H. K. (1994). Standards at the base of school reform. The School Administrator, 5, 16-22.

Levinson, C. Y. (2000). Student assessment in eight countries. Educational Leadership, 57(5), 58-61.

Main, I. (2000). Who's afraid of standards? Educational Leadership, 57(5), 73-74.

McDonnell, L. M., McLaughlin, M. J., & Morison, P. (Eds.). (1997). Educating one and all: Students with disabilities and standards-based reform. Washington, DC: National Academy Press.

McGrew, K. S., Thurlow, M. L., Shriner, J. G., & Spiegel, A. N. (1992). Inclusion of students with disabilities in national and state data collection programs (Technical Report). Minneapolis: University of Minnesota, National Center for Educational Outcomes.

McGrew, K. S., Thurlow, M. L., & Spiegel, A. N. (1993). An investigation of the exclusion of students with disabilities in national data collection programs. Educational Evaluation and Policy Analysis, 15(3), 339-352.

McKinney, J. D. (1983). Performance of handicapped students on the North Carolina Minimum Competency Test. Exceptional Children, 49(6), 547-550.

Meier, D. (2000). Educating a democracy. In J. Cohen & J. Rodgers (Eds.), Will standards save public education? (pp. 3-31). Boston: Beacon Press.

Meyen, E., & Skrtic, T. (Eds.). (1995). Special education and student disability (4th ed.). Denver: Love Publishing Company.

Michael, K. (1998). Caution: Second-wave reform taking place. Educational Leadership, 45(5), 3.

Mills v. Board of Education, 348 F. Supp. 886 (D.D.C. 1972).

Murnane, R. J. (2000). The case for standards. In J. Cohen & J. Rodgers (Eds.), Will standards save public education? (pp. 57-63). Boston: Beacon Press.

Nakashima, E. (1998, December). Montgomery links scores to attitudes. The Washington Post. Retrieved October 19, 1999 from the World Wide Web: http://www.WashingtonPost.com/wp-srv/Wplate/1998-12/09/1331-120998-idx.html

National Commission on Excellence in Education. (1983). A nation at risk: The imperative for educational reform. Washington, DC: U.S. Government Printing Office.

National Education Association. (1997, June). Nationwide issues in education: Voluntary national tests, 1, Author. Retrieved March 1, 2000 from the World Wide Web: http://www.nea.org/helpfrom/achieve/achievement/tests.html

National Education Association. (1997, June). Nationwide issues in education: Voluntary national tests, 3, Author. Retrieved March 1, 2000 from the World Wide Web: http://www.nea.org/helpfrom/achieve/achievement/tests.html

Neill, M. (1998). National test are unnecessary and harmful. Educational Leadership, 6, 45-46.

Ohanian, S. (2000). Goals 2000: What's in a name? Phi Delta Kappan, 81(5), 345-355.

PARC, Pennsylvania, 334 F. Supp. 1257 (E.D. Pa. 1971).

Pilotin, M. (2001, January). Where the stakes are high for students. NEA Today. 19, 10-11.

Popham, W. J. (1999). Why standardized test don't measure educational quality. Educational Leadership, 56(6), 8-15.

Quality counts '98 (1998, August 30). Make performance count. Education Week on the WEB. Retrieved March 15, 2000 from the World Wide Web: http;//www.edweek.org/sreports/qc98/solutionsd/so-s2.htm

Quality counts '98 (1998, August 30). Raise the bar. Education Week on the WEB. Retrieved March 15, 2000 from the World Wide Web: http;//www.edweek.org/sreports/qc98/solutionsd/so-s1.htm

Rhim, L. M., & McLaughlin, M. J. (1997). State-level policies and practices: Where are students with disabilities? Alexandria, VA: Center for Policy Research on the Impact of General and Special Education Reform.

Rothstein, L. F. (1995). Special education law (2nd ed.). New York: Longman.

Safer, L. A. (1980). Implications of minimum competency standards and testing for handicapped students. Exceptional Children, 46, 288-290.

Salend, S. J. (2001). Creating inclusive classrooms: Effective and reflective practices (4th ed.). Upper Saddle River, NJ: Merrill Prentice Hall.

Schmoker, M. (2000). The results we want. Educational Leadership, 57(5), 62-65.

Schmoker, M., & Marzano, R. (1999). Realizing the promise of standards-based education. Educational Leadership,56(6), 17-21.

Shapiro, J. P., Loeb, P., Bowermaster, D., Wright, A., Headden, S., & Toch, T. (1993). Separate and unequal. U. S. News Online. Retrieved February 21, 2000 from the World Wide Web: http://www.usnew.com/usnews/news/93ed1.htm

Shokoohi-Yekta, M., & Kavale, K.A. (1994). Effects of increased high school graduation standards on college entrance examination performance of students with learning disabilities. Learning Disabilities Research and Practice, 9(4), 213-218.

Stronge, J. H. (2000). Educating homeless children and youth: An introduction. In J. H. Stronge & E. Reed-Victor (Eds.), Educating homeless students (pp. 1-20). Larchmont, NY: Eye on Education.

Thayer, Y. (2000). Virginia's standards make all students stars. Educational Leadership,57(5), 70-72.

Thernstrom, A. (2000). No excuses. In J. Cohen & J. Rodgers (Eds.), Will standards save public education? (pp. 35-39). Boston: Beacon Press.

Thompson, S. & Thurlow, M. (1999) 1999 State special education outcomes: A report on state activities at the end of the century. (Synthesis Report 17). National Center

of Educational Outcomes: Retrieved March 18, 2000 from the World Wide Web: http://www.coled.umn.edu/nceo/OnlinePubs/99StateReport.htm

Thompson, S., Thurlow, M., Spicuzza, R., & Parson, L. (1999). Participation and performance of students receiving special education services on Minnesota's Basic Standard's Test: Reading and math, 1996 through 1998 (Minnesota Report No. 18). Minneapolis: University of Minnesota, NCEO Publications Office.

Thurlow, M. L., Elliott, J. L., Scott, D. L., & Shin, H. (1997). An analysis of state approaches to including students with disabilities in assessments implemented during educational reform (Technical Report 18). Minneapolis: University of Minnesota, National Center on educational Outcomes.

Thurlow, M., Scott, D.L., & Ysseldyke, J.E. (1995). A compilation of states' guidelines for accommodations in assessments for students with disabilities (Synthesis Report 17). Minneapolis: University of Minnesota, National Center on educational Outcomes.

Turnbull, H. R. (1993). Free appropriate public education: The law and children with disabilities (4^{th} ed.). Denver: Love Publishing.

U.S. Department of Education. (1995). Seventeenth annual report to Congress on the implementation of the Individuals with Disabilities Education Act. Washington, DC: U.S. Government Printing Office.

U.S. Department of Education. (1997). Nineteenth annual report to Congress on the implementation of the Individuals with Disabilities Education Act. Washington, DC: U.S. Government Printing Office.

U.S. Department of Education. (1998). Twentieth annual report to Congress on the implementation of the Individuals with Disabilities Education Act. Washington, DC: U.S. Government Printing Office.

U.S. Department of Education. (1999). Twenty-first annual report to Congress on the implementation of the Individuals with Disabilities Education Act. Washington, DC: U.S. Government Printing Office.

Vanderwood, M., McGrew, K. S., & Ysseldyke, J. E. (1998). Why we can't say much about students with disabilities during reform. Exceptional Children, 64(3), 359-370.

Virginia Department of Education. (1997). Guidelines SOL Assessment Program for Students with Disabilities. Students with disabilities: Guidelines for participation in the standards of learning assessment. Richmond, VA: Author.

Virginia Department of Education. (1999, February 3). Virginia Standards of Learning Assessments: Standards of Learning (SOL) tests validity and reliability information, spring 1998 administration. Richmond, VA: Author.

Virginia Department of Education. (1999, Spring). Virginia school report cards. Retrieved November 10, 1999 from the World Wide Web:http://www.-test.pen.k12.va.us/html/reportcard.shtml

Virginia Department of Education. (1999, August 13). Virginia schools improve on all SOL tests; show progress towards eventual accreditation standard. Retrieved November 10, 1999 from the World Wide Web: http://141.104.22.210/VDOE/NewHome/pressreleases/aug1399.html

Virginia Department of Education. (2000, July). Virginia Board of Education adds flexibility to diploma, accreditation rules. Retrieved April 28, 2000 from the World Wide Web: http://www.pen.k12.va.us /VDOE/NewHome/pressreleases/jul2800.html

Virginia Department of Education. (2000, October 25). Virginia schools hit a triple on accreditation standards. Retrieved November 10, 2000 from the World Wide Web: http://www.pen.k12.va.us/VDOE/NewHome/pressrelease/oct2500.html

Vitello, S., Camilli, G., & Molenaar, P. (1987). Performance of special education students on a minimum competency test. Diagnostique,13(1), 28-35.

Ysseldyke, J.E., Algozzine, B., & Thurlow, M. L. (1992). Critical issues in special education. Boston: Houghton Mifflin Company.

Ysseldyke, J.E., Thurlow, M. L., Kozleski, E., & Reschly, D. (1998, April). Accountability for the results of educating students with disabilities. National Center of Educational Outcomes: Retrieved September 30, 1999 from the World Wide Web: http://www.coled.umn.edu/nceo/OnlinePubs/awgfinal.html

Zlatos, B. (1994). Don't test, don't tell: Is 'academic red-shirting' skewing the way we rank our schools? American School Board Journal,181(11), 24-28.

VITA

Paula Maria Spady

Birthdate: July 5, 1960

Birthplace: Newport News, Virginia

Education:

1994 - 2001	The College of William and Mary Williamsburg, Virginia Doctor of Philosophy
1984 - 1985	Hampton University Hampton, Virginia Masters of Arts
1978 -1982	Old Dominion University Norfolk, Virginia Bachelor of Science